a sensor mounted in one of the press apparatus or support roll for producing a signal indicative of the pressure on the paper web as the paper web is passed through the gap adjacent said sensor; and

a controller operatively linked with the sensor for receiving the signal, determining the measure of the gap as a function of the pressure, and causing the actuator to move the pressure body to control the gap size.

2. (Amended) A control system for measuring a gap as set forth in claim 1, further including a belt interposed between the paper web and the press apparatus; and the press apparatus includes an air chamber for applying pressurized air to the belt.

4. (Twice Amended) A control system for measuring a gap as set forth in claim 3, wherein the pressure body includes leading and trailing arms; a seal is mounted on a distal end of at least one of the leading or trailing arms for contacting one of a belt and a felt in nipping engagement therewith; and the transducer is mounted in the seal of at least one of the leading or trailing arms for producing signals indicative of the gap between the press apparatus and the support.

5. (Twice Amended) A control system for measuring a gap as set forth in claim 1, wherein the support comprises a rotatable support roll having a cylindrical support surface; and the pressure body includes a seal which has an outer surface contoured to substantially conform with the support surface of the support roll.

6. (Amended) A control system for measuring a gap as set forth in claim 1, wherein the actuator comprises at least one flexible tube capable of expanding or contracting upon being linked with a source of pressurized air to selectively apply force to move the pressure body to control the gap size.

7. (Twice Amended) A control system for measuring a gap as set forth in claim 6, wherein the pressure body includes a seal for contacting one of a belt and a felt in nipping engagement therewith.

10. (Twice Amended) A control system for measuring a gap as set forth in claim 1, wherein the paper web is disposed to travel between a belt and a felt; the support comprises a support roll having a roll surface; the pressure body includes a seal having a surface curved for engaging the belt over the support roll surface; and the sensor includes a transducer operatively mounted in the seal curved surface for engaging the belt and producing a signal indicative of the gap between the seal surface and the support roll surface as the belt, paper web and felt are passed therebetween.

11. (Amended) A control system for measuring a gap as set forth in claim 10, further including a pressure transducer coupled with a controller, which in turn is coupled with a source of pressurized air whereby the controller controls said source of pressurized air to provide a predetermined air pressure as a function of the pressure transducer signal to produce a corresponding force in the pressing apparatus and seal to maintain the gap at a predetermined size as measured by the pressure transducer.

12. (Twice Amended) A control system for measuring a gap in an apparatus for pressing a traveling paper web, comprising:

a controlled deflection roll having a center shaft and a hollow cylindrical roll shell rotatably disposed about the support shaft and at least one pressure shoe mounted on the center shaft for supporting and applying pressure to the roll shell against the inner cylindrical surface thereof;

a support includes a support roll having a cylindrical support roll surface for supporting the paper web, said support roll and said controlled deflection roll defining the gap therebetween,

said support roll positioned underneath said paper web;

a sensor includes at least one transducer producing a signal and mounted in the support roll surface; and

a controller operatively linked with the sensor for receiving the signal, determining the measure of the gap as a function of the pressure, and causing an actuator to move the controlled deflection roll to control the gap size.

15. (Twice Amended) A control system for measuring a gap and apparatus for pressing a paper web as the paper web travels through the gap, the apparatus comprising:

a controller;

a pressure source;

a controlled deflection roll having a center shaft and a hollow cylindrical roll shell disposed for rotation about the center shaft, the controlled deflection roll further having a plurality of end-aligned shoes mounted on the center shaft for supporting and applying pressure to the roll shell against the inner cylindrical surface thereof;

a support roll mounted in opposed array with the controlled deflection roll such that the gap is formed between the controlled deflection and support rolls as the paper web is passed in the nip therebetween, said support roll positioned underneath said paper web;

a plurality of transducers mounted in the support roll surface for measuring the gap beneath each transducer, each of the transducers linked to the controller to provide signals indicative of the gap adjacent a specific transducer;

the pressure source is operatively linked to individual shoes for providing power to move the shoes relative to the center shaft;

the controller is operatively linked with the pressure source to actuate individual shoes responsive to signals received from corresponding transducers indicative of gap measurement at a corresponding location along the nip between the controlled deflection roll and support roll.

16. (Twice Amended) A control system for measuring a gap in an apparatus for pressing a traveling paper web as the paper web travels through the gap, the apparatus including a support and a press apparatus, said press apparatus including a pressure body, said pressure body and said support defining the gap therebetween, comprising:

a frame for movably supporting the pressure body;

the support includes a support roll having a cylindrical surface, said support roll positioned underneath the paper web;

the pressure body includes an air pressure chamber having leading and trailing arms disposed to engage one of a belt and a felt to seal the air pressure chamber thereagainst;

a pressure source for providing pressurized air to the air pressure chamber for providing pressing force to the web as the web passes beneath the air pressure chamber over the support roll surface;

at least one sensor attached to at least one of the leading or trailing arms at the interface between the at least one arm and one of the felt and belt over the surface of the roll for producing a signal indicative of the pressure on the paper web as the paper web is passed proximate to said sensor; and

a controller operatively linked with said pressure source and with the at least one sensor for receiving the signal, measuring the gap and selectively causing increasing or decreasing pressure on the pressure body to control the gap.

17. (Twice Amended) A control system for measuring a gap as set forth in claim 16, further including: